



GARY R. HERBERT
Governor

GREGORY S. BELL
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

September 12, 2013

David McMullin
C.S. Mining LLC.
1208 S. 200 W.
P.O. Box 608
Milford, Utah 84751

Subject: Initial Review of Revision to Notice of Intention to Commence Large Mining Operations, C.S. Mining LLC., Hidden Treasure Mine, M/001/0067, Beaver County, Utah

Dear Mr. McMullin:

The Division of Oil, Gas and Mining has reviewed the referenced Notice of Intention to Commence Large Mining Operations (Notice) which was received June 5, 2013. The attached comments will need to be addressed before tentative approval of the modified Notice may be granted. **Comments with bold text are those that will need to be addressed before the amendment to incorporate the Sunrise pit, waste dumps, and the new haul roads can be approved.**

Prior to approval, the Division will need to coordinate with the Bureau of Land Management and possibly the State Historic Preservation Officer to ensure that cultural resources have been considered. We understand that some project areas on private land (such as future facilities) will not be considered as part of the BLM cultural resources review. The Division will need to verify that the effect of these proposed operations on cultural resources has been considered prior to approval.

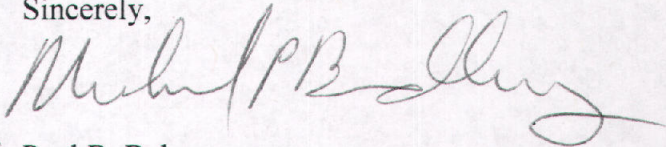
The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address only those items requested in the attached technical review by sending replacement pages of the original mining notice using **redline and strikeout** text.



Page 2 of 20
David McMullin
M/001/0067
September 12, 2013

The Division will suspend further review of the Notice of Intention until your response to this letter is received. If you have any questions about the review please contact Peter Brinton at 801-53-5258 or me at 801-538-5261. Thank you for your cooperation in completing this permitting action.

Sincerely,



For Paul B. Baker
Minerals Program Manager

PBB: pnb: eb
Attachment: Review

cc: Ron Wunderlich, CS Mining (rwunderlich@csmining.com)
Ed Ginouves, BLM-Cedar City (eginouve@blm.gov)

P:\GROUPS\MINERALS\WPM001-Beaver\M0010067-HiddenTreasure\final\REV-5496-09032013.docx

**1st REVIEW OF REVISION TO NOTICE OF INTENTION
TO COMMENCE LARGE MINING OPERATIONS**

**C.S. Mining LLC.
Hidden Treasure Mine
M/001/0067
September 10, 2013**

General Comments:

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
1	General	The submittal should be formatted to easily incorporate additional revisions and amendments (no specific response needed).		
2	General	The Division may generate additional comments based on the response to this review. Please make every attempt to fully address the rules as completely as possible (no specific response needed).		
3	106.9, 110.2, 112	The 2012 approved maps include the low-grade Bawana ore piles in this large mine permit, but very little discussion of these piles or their reclamation has been made in the text. Currently these piles are permitted under a small mine permit (S/001/0076). For the Division to approve the proposed bond release request for S/001/0076, the low-grade Bawana ore piles and their reclamation need to be discussed, and their reclamation cost included.	pnb	
4	Appendix B	Verify that none of the information in this appendix is unique when compared with the rest of the Notice. If the information in Appendix B is duplicated elsewhere, it should be removed.	pnb	
5	Appendix D Figure 3	Detail DT-1 indicates the geotextile is above the tailings, DT-2 shows a typical section of a dike raise and extension of liner. Please provide more details on the HDPE liner, a detail highlighting the existing liner, and the specifications for the liner(s).	lah	
6	Appendix E	Include documentation from the State Engineer on the tailings pond (s). Also include text under 109.4 addressing static and dynamic slope stability of the tailings ponds.	lah	
7	Appendix E	As stated on page 17, "ponds will be designed to contain all un-diverted upland runoff." Design specifications for the Intermediate Tailings Disposal Facility (ITDF) tailings ponds do not account for design storm event when the tailings are at their maximum height. There was no indication that there will be any freeboard allowance in the event of a design storm such as the 100-year, 24-hour or 10-year, 24-hour storm which is generally the convention that these types of structures are	aa, pnb	

		designed for. Design criteria for all hydrologic structures, including tailings impoundments, culverts, and ditches, to assure that are designed for peak flow conditions will need to be submitted for inclusion in appendices.		
8	Appendix G	While metallurgy information discussed with the consultant is helpful to indicate whether waste rock and tailings will have neutralization potential, additional sampling of the Sunrise deposit, using industry standard characterization methods, is needed in order to determine that waste rock, pit walls/floors, and ore from the Sunrise deposit will not be acid-forming and/or otherwise deleterious. Provide characterization information, or commit to ongoing sampling, analysis, and scheduled reporting, until adequate information to characterize the Sunrise deposit has been provided. Please summarize in 106.4.	pnb, lah	
9	Omission	Provide characterization for ore and tailings from each of the pits. Identify sampling by pit and location within the pit. The number of samples should be statistically significant. Analyses should include chemical analyses, acid-base analysis, leaching, and any additional mineralogical information. Contact the Division with questions.	pnb	
10	Appendices I through M	As indicated in the Table of Contents, these appendices are needed once complete.	pnb	
11	Omission - Appendices	Please include placeholders for appendices to justify the pit slope stability variance request, as needed.	pnb	
12	Omission - Various Appendices	Appendices present in the approved 2012 Notice are missing from the Table of Contents and the Appendices of the modified Notice (such as the Milling Reagents, Correspondence, and Geologic Information for the Hidden Treasure and OK Deposits). Please explain why these appendices are no longer needed. This may be best done in a letter rather than the Notice.	pnb	

R647-4-104 – Operator Information and Surface and Mineral Ownership

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
13	Page 3-4	Identify the current company principals, consistent with the list of principals registered with the Division of Corporations.	pnb	

R647-4-105 - Maps, Drawings & Photographs

General Map Comments

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action

14	General	Some maps are not consistent with each other. For example, the proposed haul road route east of the Maria pit is not shown on a number of maps. Before the Division can approve the revision request, consistent maps that meet the Division's rules will need to be provided. It appears that some of the submitted maps could be removed, depending on which maps are modified to address these comments.	pnb	
15	General	R647-4-105.1.12 lists specific structures that must be shown on the on the permit boundary maps. Please indicate in the text which of these structures are present and which are absent.	whw	
16	General	Print maps using line settings like those used in the 2012 maps, which are easier to read.	pnb	
17	Omission	Please have one map that shows the surface ownership of all lands within the permit boundary and adjacent areas. Figure 1 does show some property boundaries however, the map contains areas at different scales.	pnb	
18	Omission	Provide a map showing a layout of the truck shop facilities, including the truck shop well and complete waterline to the mill area.	pnb	
19	Omission	Provide post-mine reclamation maps (reclamation treatment maps) to show planned reclamation activities for the existing and proposed processing facilities (mill, leaching SX/EW, etc), the truck shop area, and the tailings impoundments. Items that receive a variance from reclamation requirements, such as a well near the concentrator and the 100,000 gallon tank, should be shown as not being reclaimed, and should be consistent with section 112 in the text.	pnb	
20	Omission	Provide a hydrology map showing hydrologic structures such as existing (and proposed) water wells, the four monitoring wells downgradient of the tailings, water rights locations, ditches, berms, culverts, watersheds, flow direction of diverted runoff around the mine pits, tailings ponds, waste dumps, buildings, and other areas of disturbance relative to the location of Hickory Wash. Consider expanding the scale of the map to include areas of other future tailings storage facilities. The Division suggests providing multiple maps in order to provide the required detail. This map should be supported with design criteria for all hydrologic structures, including the tailings impoundment, culverts, and ditches, to assure they are designed for peak flow conditions.	aa, pnb	
21	All	The Division recommends condemnation drilling being done before placing dumps and waste piles.	lah	

105.1 - Topographic base map, boundaries, pre-act disturbance

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
22	Omission	Please provide a topographic base map of the site. This will be needed for final approval of the proposed revision to add the new facilities and tailings.	pnb	
23	Omission	R647-4-105-1.14 requires that the Operator show the access route from the nearest	pnb	

		publicly maintained highway. If possible show the location of towns and other landmarks to identify the directions to the mine.		
--	--	---	--	--

105.2 - Surface facilities map

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
24	Figure 1	The existing haul road is shown on Figure 1, but the new haul road from the Bawana pit to the Hidden Treasure pit is not shown. Revise to show the newly-proposed haul road.	pnb	
25	Figure 1	Show the topsoil storage area(s) associated with the Sunrise mine and with the acid leaching and SX/EW plant construction, consistent with page 29.	pnb	
26	Figure 1	Increase the scale of the map so that the entire Sunrise operations area, the truck shop area, the truck shop well, other possible future mining areas, and well #3 are also shown on this figure. Hide the parts of the green SITLA and the lode claim boundaries that extend into the inset detail area.	pnb, whw	
27	Figure 1	Show the truck shop and associated facilities on Figure 1.	pnb	
28	Figure 1	The "POD#3 FUTURE WELL" near the intermediate tailings facilities will need to be bonded prior to construction.	pnb	
29	Figure 1, Table 1	The names and acreages on the maps should correspond to the information in the acreage table. For example, label the Hidden Treasure dump boundary and acreage, and identify the Bawana topsoil locations, consistent with Table 2.	whw, pnb	
30	Figure 1	Show the approved contours and currently-approved pit boundary for the Bawana pit, as has been shown for the Sunrise and Hidden Treasure pits. Also show the waste dump contours for the Bawana and Hidden Treasure dumps, as has been shown for the Sunrise dump. If contours are available for the OK pit, please provide them as well.	pnb	
31	Figure 1	On the surface facilities maps please list each structure in a table. The structure list must correspond to the list of surface facilities listed in the reclamation cost estimate.	whw	
32	Figure 1	Identify the locations of features not included or labeled in the proposed Figure 1, such as the Copper Ranch area, the high grade ore stockpile near the Hidden Treasure dumps, and the dumps associated with the Maria and OK pits. Identify the approximate boundaries of the 4.8-acre ore stockpile area—or the boundary of a maximum area to be used for ore storage—located north of the mill.	pnb	
33	Figure 1	Since roads and other features (like the ITDF and pit and dump boundaries) are identified using identical or very similar line types, distinguish between different features, such as by using other line colors or line types. Wells, drillholes or other features represented by unlabeled dots should be distinguishable, if they are not intended to be kept confidential. Modify the legend and features accordingly. Also,	pnb	

		the legend doesn't designate the Operations Area Boundary.		
34	Figure 1	Identify the borrow area and test pit locations, consistent with maps in Appendices D and E.	pnb	
35	Figure 1 (inset)	Update this figure to correctly represent the proposed upstream addition to the flotation tailings dam, and to identify the borrow area, consistent with Appendix D maps.	pnb	
36	Figure 1 (inset)	Identify the boundaries of the dry-stacked tailings storage. Show the magnetite concentrate stockpile area (in addition to an updated copper concentrate stockpile area).	pnb	
37	Figure 1 (inset)	Identify the excavation immediately downstream of the flotation tailings impoundment and its use in storage of tailings.	pnb	
38	Figure 1 (inset)	Show the location of the proposed water line in the area of the proposed new facilities, and remove the existing water line that is to be relocated. Show the location of the septic system and drain field.	pnb	
39	Figure 2, Omission	Provide Figure 2 once complete.	pnb	
40	Figure 5	Considering its importance to the flotation tailings pond, the line used to represent the pipe to transport tailings to the pond should be more visible.	pnb	
41	Figure 6 - Omission	Figure 6 (having to do with the proposed upstream construction addition to the flotation tailings impoundment) is not included in this submittal. Submit Figure 6 for review. Modified versions of Figures 5 and 7 will also need to be submitted to represent the proposed changes.	pnb	
42	Figures 1, 9, 10, 17, etc	The Division recommends including enough area around the Hidden Treasure pit to match the dump expansion plans for approximately five years. The pit expansion rate should match the dump expansion rate. The current outline of the Hidden Treasure pit has not been expanded to match the dump expansion in the future. Section 106.2 states that the total acreage will be 25 acres, while the map shows 21.67 acres. Acreage tables in the text should be modified accordingly.	lah, pnb	
43	Figure 10 (etc.)	On this and other maps, the same dashed lines appear to have been used to indicate both the existing toe of waste dump and existing mining roads. The legend and line types should be updated to clearly identify the differences.	pnb	
44	Figure 12a	It appears that the new haul road may need to be built in the area shown as a topsoil storage area. Also, while the toe of the reclaimed waste dump is identified, it is unclear whether the purple bonded disturbance area needs to be divided along the toe of the old dumps.	pnb	
45	Figure 12b	Since the new haul road isn't shown on Figure 12a (see general map comments), the reclamation on this map does not appear to consider the reclamation of the new haul road.	pnb	

46	Figure 13	In the legend, identify the purple hatched long rectangular polygons (also not identified on Figure 10), and what appear to be topsoil storage areas.	pnb	
47	Figures 14 & 17 (etc.)	The new haul road route shown on Figures 14 and 17 is not shown on most or all of the other maps (such as Figure 1, and Figures 9 through 13). For consistency, either Figures 14 and 17 need to be updated to include the other information provided on the other maps, or the other maps of this area and the text on page 11 need to be corrected to indicate the new haul road.	pnb	
48	Figure 15	As acknowledged in the List of Figures on page ii, Figure 15 has not yet been provided. Please show any areas in or around the permit boundaries for which the Operator is not responsible. Please state in the text if any such areas exist. This should help reduce confusion in the future about what areas are inside or outside of the permit boundaries.	whw, pnb	
49	Figure 16a	Remove the historical site location on this map, since historical sites are to be kept confidential by the Division. Also, it is understood that the haul road from the Sunrise area to the Bawana area will be rerouted to avoid the historical site. Show the latest haul road location.	pnb	
50	Figure 16a	Provide additional elevation contours and elevation text for the entire Sunrise area. The Division recommends the same detail for the Sunrise expansion as provided for the Bawana and Hidden Treasure pits.	pnb, lah	
51	Figure 16b	The reclamation treatment map (post-reclamation map) for the Sunrise area has not been included. Please provide a map with content similar to 12b. This map will need to be consistent with the Notice's reclamation plan for the Sunrise area.	pnb	
52	Figure 17	It is not clear without referencing other maps what all of the black lines identify on this map. Provide more detail on this map, or modify the original maps to show the proposed haul roads, unless another map is used to replace this map.	pnb	
53	Omission	Provide operation maps for the IDTF as part of the figures attached to this Notice. The maps in Appendix E would need to be modified to include locations of any new access roads, diversion ditches, monitoring wells, liners/covers, geofabric required for upstream construction, any leak detection components, topsoil piles, any docks for pond access, and other operation map features required by rule.	pnb	
54	Omission	Provide reclamation treatment (post mine reclamation) maps for the IDTF, consistent with plans for reclaiming the IDTF. The general approach used for previous reclamation treatments maps is appropriate.	pnb	

105.3 - Drawings or Cross Sections (slopes, roads, pads, geology, etc.)

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
55	Omission	Geologic lithology and structural maps are needed, and the amount of text required in 106.8 can be reduced with good geological maps.	lah	

56	Omission	Provide cross-sections of the Sunrise dumps showing final design and reclamation slopes. The cross-sections provided for the other dumps are an acceptable pattern.	aa, pnb	
57	Omission	Provide cross-sections of the Sunrise pits.	aa, pnb	
58	Omission	Provide cross-sections of Hidden Treasure and Bawana pits.	aa, pnb	
59	Omission	Provide geologic cross-sections of the tailings impoundment areas, specifically identifying approximate alluvium thickness and underlying geology. It might be appropriate to add this information to Figure 7.	aa, pnb	
60	Possible Omission	If any deleterious materials are identified, a map showing the final location of any deleterious materials will be needed.	pnb	

105.5 – Underground and Surface Mine Development Maps

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
61	Omission	Provide a surface mine development map.	pnb	

106.2 - Type of operations conducted, mining method, onsite processing, deleterious materials

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
62	all	Slope angle designations should be consistent. The proper format is *H:1V, i.e.3H:1V.	lah	
63	Page 9, para 2	Based on Figure 1, it appears that the Sunrise pit is partially on BLM land. Correct either the text or the map accordingly, since there is a discrepancy.	pnb	
64	Page 9, para 2	No revegetation plans for the Sunrise pit are specifically identified in this section, in contrast with the Bawana pit, which will be ripped and seeded if no soil materials are available.	pnb	
65	Page 9, para 4	It is in the operator's best interest to document the previous disturbances for which the operator is not responsible or planning to reclaim. Any text documentation should be consistent with required mapping of known areas that are previously impacted by mining.	pnb	
66	Page 10	If information required for the pit slope variance request is to be provided, refer to the variance request in this section.	pnb	
67	Page 11, para 4	It appears that the text may need to be modified to discuss the new haul road location to the northeast of the Maria pit. It appears that the existing road discussed	pnb	

		might be the current haul road, which is southwest of the Maria pit.		
68	Page 11, para 4	Waste rock used for road construction should not be potentially deleterious, including for the Sunrise pit to Hidden Treasure pit road. Provide a commitment to this effect.	pnb	
69	Omitted	As acknowledged in the text (page 15, para 4), any deleterious tailings will need to be identified in this section, and references made to other sections with more detailed discussions of findings.	pnb	
70	Omitted	As acknowledged in the text (page 15, para 4), design standards will need to be reconsidered, based on the findings of the tailings' (and other materials') geochemical characterization.	pnb	
71	Page 15, para 5	Identify in the text whether the raffinate and pregnant leach solution (PLS) ponds will need to be designed with capacity for runoff from the facilities areas. It appears they are bermed to prevent runoff from entering the pond.	pnb	
72	Page 15	Clarify whether you have plans for additional production of dry-stacked tailings.	pnb	
73	Page 16-17	State the final downstream toe-to-crest heights of the raised flotation tailings embankment.	pnb	
74	Page 17, para 3	State the source of the ITDF embankment construction material, and identify the location of any borrow material.	pnb	
75	Page 17, Omission	Briefly summarize other information about the design of the tailings, including information about the two facilities' embankment slopes, final downstream toe-to-crest embankment heights, geofabric requirements to enable upstream construction, liners, covers, leak detection, monitoring wells, new access roads, any docks for pond access, the IDTF storage capacity, and the use of four phases of construction. Refer to the appendix for detailed information.	pnb	
76	Page 18, para 4	Past correspondence indicates that WW-2 has been abandoned, and that WW-3 is the well retained for use. This is consistent with the wells identified on Figure 1. Change accordingly.	pnb	
77	Page 19, para 1	The current variance applies to two wells near the concentrator, not the truck shop well. Justification will need to be provided in section 112 to explain why the truck shop well specifically should remain unreclaimed and unbonded.	pnb	
	Page 19, para 2	Discuss the handling of waste water that would collect in sumps with drains, such as those shown in the SX/EW preliminary drawings in Appendix F (30-GA-01, 30-GA-02, 40-GA-01, etc.). Where will drains lead?	pnb	
78	Omitted	Briefly identify whether there will be any deleterious or acid forming materials for each orebody's ore, waste, pit walls, and tailings. Reference other sections (like 106.4) and appendices for more details.	pnb	

106.3 - Estimated acreages disturbed, reclaimed, annually

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
79	Omission	Clearly identify the total acreage proposed to be disturbed, consistent with Table 1.	pnb	
80	Page 20	The Hidden Treasure Haul Road acres have changed, but the descriptions of the lengths and widths have not changed. Correct as needed.	pnb	
81	Page 21, Table 1	The Sunrise pit and dump acreages listed in Table 1 are different from the pit and dump acreages listed in the text on page 9. Also, the text on page 9 states that the Sunrise Pit will be located on patented land, while Table 1 states that the pit will be on both patented and BLM land. Maps indicate that the pit will be on both BLM and patented land. Correct the table, the map, and the text accordingly.	pnb	
82	Page 21, Table 1	Include the borrow area acreage in Table 1, consistent with Figure 1 and Appendix D.	pnb	

106.4 - Nature of materials mined, waste and estimated tonnages

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
83	Pages 22-23, Omission	The following statements have not been adequately documented. Provide documentation for these statements: - "historical reports of low to non-existent amounts of pyrite" (page 22, para 2), - "the absence of significant quantities of pyrite..." (page 22, para 5), and - "the absence of significant quantities of acid-forming minerals in the waste rock..." (page 23, para 1)	pnb	
84	Page 22, para 2	Discuss the 2012 analyzed samples, including samples from the Sunrise pit. Identify sample locations, pit sampled, sample types (ore/waste/pit wall, etc) and methods (core hole, cuttings, channel, etc.), and any differences between the samples from different pits. Provide in an appendix the 2012 mineralogical and metallurgical tests from ALS (and from any other sources), and reference their appendix location in the text of the Notice in this section.	pnb	
85	Page 22, para 3	Text indicates "65 % oxide on average" for the OK deposit. Please account for the "other" 35 %. Met testing indicates 1.3 to 1.7 % copper. Summarize the data from the metallurgical report in Appendix G and account for the difference. Provide the Taylor document in an appendix.	lah, pnb	
86	Page 22, para 4	Additional sampling and analysis of the Sunrise deposit using industry standard rock characterization sampling and testing will be needed to determine whether acid-forming and/or other deleterious materials will be present in the waste rock, pit walls/floors, and ore. Provide characterization information for the Sunrise deposit, or commit to an ongoing sampling, analysis, and reporting program, including a reporting schedule, until adequate information has been provided. A summary of chemical analyses, acid-base	pnb	

		accounting (ABA), and possibly metal leaching tests should be provided.		
87	Page 22, para 4	Summarize the metallurgical information discussed with the consultant, and justify why these findings suggest that excess potential exists to neutralize any acid generation at the Sunrise and other pits.	pnb	
88	Page 22, para 4	Discuss characterization findings for future tailings as they relate to their potential for being acid-forming or otherwise deleterious in nature, and provide sampling and analysis data in an appendix (including pit of origin and relative location within the pit). Summary of acid-base accounting (ABA), leaching tests, and any other pertinent tests should be provided here.	pnb	
89	Page 22, para 4	Discuss the results of past analysis of tailings water. Re-include pertinent portions of Appendix G (correspondence) in the appendices, and reference and summarize any other pertinent tailings or waste rock characterization information from Appendix G.	pnb	
90	Page 22	Provide a commitment to properly store & reclaim any deleterious materials that may be found, and refer to section 110.4 for more details.	pnb	
91	Page 23	Have the pit life durations changed since the 2012 amendment? No change in the pit lives of the Bawana and Hidden Treasure pits has been made.	pnb	
92	Page 23, para 4	Consistent with the discussion of the West OK stockpiles, refer to the production from the Bawana low-grade stockpiles if appropriate.	pnb	
92a	Page 23, omission	Discuss the possibility that nitrates may be introduced into waste rock and ore/tailings by blasting. Discuss in terms of deleterious materials.	pnb	

106.5 - Existing soil types, location, amount

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
93	Page 29	Ensure that the Sunrise acreages identified on this table are consistent with any corrected acres on Table 1 (page 21) and any maps.	pnb	

106.6 - Plan for protecting & re-depositing soils

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
94	Page 30, page 3	Include the new processing facilities and the truck shop area in the list of areas to receive soils during reclamation.	pnb	
95	Page 30, page 5	Correct the reference to the variance request for the safety berm revegetation, since the variance is denied. See comments under R647-4-112.	pnb	

106.7 - Existing vegetation - species and amount

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
96	Page 31, Omission	As stated, the biological survey should be provided once completed, and provided as an appendix.	pnb	

106.8 - Depth to groundwater, extent of overburden, geology

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
97	Page 32	The Division will need to re-evaluate the characterization of and impacts to groundwater upon receipt of the groundwater discharge permit. Update this section to summarize findings of the discharge permit.	pnb	
98	Page 32	Clarify whether underground and surface workings have intercepted groundwater since 2004, and whether proposed pits will intercept groundwater.	pnb	
99	Page 32	Identify the water level in the truck shop well, and if below a water table, in monitoring wells downgradient of the tailings impoundments. Summarize any water level (elevation) data acquired by exploration drilling.	pnb	
100	Page 32, para 4	The contents of this paragraph are inconsistent with the contents of a similar paragraph in 109.1 that discusses the water wells. Compare the two paragraphs, and correct this paragraph as needed.	pnb	
100a	Page 32	Please discuss baseline water quality. Refer to and summarize the groundwater sample analyses provided in the appendix.	pnb	
101	Page 33	Include a geologic map and cross sections that show structural geology noted in the text. Include orientation of geologic units and structural features. As noted above, per R647-4-105.3.16, geologic lithology and structural maps are needed, and the amount of text required in 106.8 can be reduced with good geological maps. The Notice should also include details about unconsolidated or alluvial material above the bedrock. Depth to bedrock contour maps would be helpful. Details about alluvial fill relates to slope stability of highwalls and to ground water issues. Information about the location, size, and nature of the mineral deposit will be kept confidential if marked confidential.	lah pnb	
102	Page 33, para 3	This paragraph contains a statement that the lower elevations adjacent to the two ranges are underlain-by quaternary alluvium. They are most likely overlain by quaternary alluvium.	pnb	
103	Page 33	Identify whether the adit will be below the ultimate tailings deposition elevation, and if so, whether there will be any adit closure methods prior to tailings deposition. Additional discussion may be required in other areas of the Notice.	pnb	
104	Page 33	Please comment on the geology underlying the ITDF structures, including the alluvium and underlying bedrock. Specifically, what is the underlying geology the eastern drainage? Refer to the forthcoming ground water discharge permit and the	aa, pnb	

Page 14 of 20
David McMullin
M/001/0067
September 12, 2013

		geologic cross-section requested in the comment for 105.3, as needed.		
--	--	---	--	--

106.9 - Location & size of ore, waste, tailings, ponds

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
105	Page 34, para 2	Discuss plans for the Bawana Low-Grade Ore Piles, as you have for the West OK ore piles.	pnb	
106	Page 34, para 3	Refer to section 106.4, and make sure that these statements reflect the conclusions of 106.4.	pnb	
107	Page 34, omission	Provide an estimated amount of tailings to be produced per year.	pnb	

R647-4-107 – Operational Practices

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
108	Page 36, para 3	Include the MSD sheets from the previous approval as an appendix in this amendment.	pnb	
109	page 37	Since erosion control, deleterious materials, etc., are not included in rule 107.1, please re-name or re-number the headings in this section to be accurate..	pnb	
110	page 37	Please quantify how much fuel storage is needed onsite. If storage capacity exceeds 1320 gallons of oil, then a Spill Prevention, Control, and Countermeasure (SPCC) plan is required by EPA, and the plan should be included as an appendix. Refer to 40CFR part 112.	aa, pnb	
111	Page 37, para 3	While backfilling of pits is not required by rule, please provide further explanation for why plans do not exist to backfill other pits. Please consider and discuss the feasibility of concurrent reclamation practices (including backfilling pits concurrent with mining of other pits) beyond stating "when practical". What is the feasibility of backfilling the Bawana pit using Sunrise overburden, for example? Assuming tailings are adequately benign, is in-pit disposal of tailings reasonable? Refer to the surface development figure required by 105.5. Please list the estimated mine life of each pit, when operations are projected to begin and end, and state that you will reclaim the disturbed areas when mine operations are complete or no longer feasible, consistent with section 110.	aa, pnb	

R647-4-108 - Hole Plugging Requirements

Page 15 of 20
David McMullin
M/001/0067
September 12, 2013

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
112	page 38	Provide text referring to variances in section 112. The text of the variance approved in the past has been changed.	pnb	

R647-4-109 - Impact Assessment

109.1 - Impacts to surface & groundwater systems

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
113	Omission	Please provide statements clearly identifying projected impacts of mining activities on surface and groundwater systems. The Division will need to re-evaluate this section upon receipt of the groundwater discharge permit. Update this section to summarize findings regarding any impacts reported in the discharge permit. Some of the information in this section does not address impacts and would be better located in section 106.	pnb	
114	page 39, para 5	State whether the acid leach, SX/EW, truck shop, and ITDF facilities do or will intercept any defined channels. Identify here any water diversion and storage that will be used to mitigate potential impacts, and refer to the appropriate appendix(ces).	pnb	
115	Page 40, para 2	Refer to section 106.4, and make sure that these statements reflect the conclusions of 106.4. Refer to baseline water quality and the results of upcoming sampling to discuss impacts. Identify any impacts associated with nitrates from blasting.	pnb	
116	Page 40, para 3 & 5	These two paragraphs are identical.	pnb	
117	Page 40, para 6	The reagents are listed in section 106, instead of 109. Modify the text accordingly, and refer to the location of the MSD sheets which should be included in an appendix.	pnb	
118	Page 40, Omission	Discuss impacts of the past, current, and future dry-stack tailings storage discussed on page 15 (para 6). Refer to past tailings water samples submitted to DEQ.	pnb	
119	Page 40-41	The discussion of projected impacts will need to be re-evaluated, once the final design of the IDTF is available. Explanation for the presence or lack of a leak detection system will need to be provided.	pnb	
120	Page 41, para 2	This paragraph includes sentences that are not complete. Change as needed.	pnb	
121	Page 41, para 4	The information from this paragraph would be best placed in Section 106.8.	pnb	
122	Page 41, para 5	Please provide a more comprehensive justification for why the four water monitoring wells are not being monitored other than "per an understanding between DWQ and	aa	

		CSM". Provide the results of any monitoring data. Some of this information is duplicated in 106.8.		
123	Para 41, para 6	The contents of this paragraph do not discuss impacts, and any non-repetitive information should be moved to 106.8.	pnb	

109.3 - Impacts on existing soils resources

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
124	Omission	Summarize the projected impacts of mining activities on soil resources.	pnb	

109.4 - Slope stability, erosion control, air quality, safety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
125	Omission	Statements identifying projected impacts of mining activities on have not been provided in all cases.	pnb	
126	Page 43-45	Please provide documentation for pit slope stability, include geomechanical data for each rock type, geotechnical data for each soil type for each pit. Include structural geologic data on map and cross sections. Refer to Section 112 if information required for a variance is provided.	lah, aa	
127	page 44	Refer to the variance section for a discussion of any justifications for allowing the Bawana and Sunrise pits to remain steeper than 45 degrees. Only the Hidden Treasure pit has been granted a variance to date.	pnb	
128	Page 45, para 5	Identify the design precipitation event for the eastern ITDF pond, as you have for the western pond.	pnb	
129	Page 45, para 5	Please include documentation of the mechanical stability of the tailings impoundment as justification to leave impoundments. Documentation is important so that in the future interested parties will not have to search superseded documents to find the information.	whw, pnb	
130	Page 45, para 5	Discuss how the proposed use of geofabric and any other methods will minimize stability problems that can be associated with the upstream construction method. Refer to documentation of tailings stability.	pnb	
131	Page 46, para 3	Will erosion be reduced on other reclaimed areas because of revegetation efforts, such as on the other processing facilities? If so, identify other applicable areas.	pnb	

132	Page 46, para 4	This section will need to be modified once the Air Quality Approval Order has been approved by DEQ. What are the impacts of this operation on air quality? Please submit the Air Quality Approval Order as an appendix.	pnb	
-----	--------------------	---	-----	--

Other permits

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
133	Page 47, para 7	Remove the reference to the Bawana Low Grade Ore Piles (S/001/0076) small mining permit, since it is in the process of being incorporated into this large mine permit.	pnb	

R647-4-110 - Reclamation Plan

110.1 - Current & post mining land use

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
134	Page 49	Any archaeological information submitted to the Division should be in a separate appendix that can be kept confidential, as required by law.	pnb	

110.2 - Roads, highwalls, slopes, drainages, pits, etc., reclaimed

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
135		It is noted that the Bawana pit is to be partially backfilled, and that possible backfilling of either the Hidden Treasure or Sunrise pits not discussed. Refer to the comment in section 107 of this review. Identify pits which may be at least partially backfilled as part of reclamation. As needed, modify the reclamation plan for affected dumps and adjust reclamation costs accordingly.	aa, pnb	
136	Pages 49-51	Identify reclamation plans for borrow areas.	pnb	
137	Omission	Identify reclamation plans for drainages impacted by tailings impoundments, road construction, etc. See reclamation requirements in R647-4-111.2 and 111.9. Typical reclamation plans for drainages impacted by roads include removal of culverts where present, regrading to establish natural and/or permanent, stable drainages, etc. Also provide reclamation plans for any of the other features required to be reclaimed under this rule. Refer to R647-4-111.2.	pnb	
138	Page 50 Para 4	Include more data on geotextile to be placed on the tailings surface, include in bond costs, or provide justification for not capping the tailings.	lah	

139	Page 50, para 4	State whether wet tailings will be allowed to dry prior to capping with the geotextile. If plans for de-watering exist, how will the tailings impoundment be de-watered (including any equipment), and determine how long dewatering will take place.	pnb	
140	Page 50, para 4	Identify any reclamation plans for managing drainage that would naturally flow over the capped tailings impoundments in order to prevent possible erosion or ponding problems. Also, what is the reclamation plan for the proposed diversion ditch upstream of the eastern pond? See reclamation requirements in R647-4-111.9.	pnb	
141	Page 51, para 1	Identify reclamation plans for the haul roads that aren't part of the county roads, including the newly-proposed haul road.	pnb	
142	page 51	The Division will allow a variance from reseeding requirements for the safety berm but not a variance from revegetation requirements. Please see further comments under section 112 of this review.	pnb	
143	Page 51, para 3	Discuss reclamation of the Bawana low grade ore stockpile, consistent with page 28.	pnb	
144	Page 51, para 4	Identify reclamation plans for stacked tailings and the flotation tailings impoundment, consistent with page 16 (para 1, etc.).	pnb	
145	Page 52, para 5	The statement that soils will be ripped or scarified, with the exception of the ITDF, conflicts with a statement in on page 18 (para 3) that topsoil placed on the ITDF will be scarified prior to seeding. Correct inconsistencies in the two text locations.	pnb	

110.4 - Description or treatment/location/disposition of deleterious or acid forming materials, including map

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
146	Page 52, para 4	If deleterious materials are found, a description of their treatment, location, and disposition will need to be provided. Discuss how and where deleterious waste rock and/or tailings would be stored or treated, if found.	pnb	
147	Omission	Discuss the purposes for the geosynthetic liner planned for covering tailings. If deleterious materials are not present at the site, will a geosynthetic liner be placed over the entire site?	pnb	

R647-4-112 - Variance (List all variances requested and make a finding if approving.)

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
148	Page 55 Para 1	Please provide geotechnical/geomechanical details to support the variance to leave highwalls steeper than 45 degrees for the Bawana and Sunrise pits. The report should be stamped by the geotechnical engineer of record and included in an appendix. Summarize the report findings here. Modify references to the variances	lah, whw, pnb	

		elsewhere in the text. Documentation is important to that in the future interested parties will not have to search superseded documents to find the information.		
149	P 55	Variance for Structures and Equipment. The Division will <u>not</u> issue a variance for leaving the truck shop due to uncertainties. If at time of reclamation, the Operator wants to donate the truck shop to the County, or if another entity desire to take it over, the Division will consider the request as well as a request for leaving other equipment. The Division cannot grant the variance at this time because the condition of the equipment at time of reclamation is unknown and because there is no binding agreement for third parties to take over responsibility. If desired, this statement may be moved to Section 110, but the Notice needs to show that these areas and this equipment will be reclaimed, including the truck shop and associated well.	whw, pnb	
150	Page 56, para 1	Provide additional information supporting the proposal that the truck shop well be left unreclaimed after mining. Otherwise, the language from the currently-approved Notice (approved in August 2012) should be retained in place of the proposed language indicating the anticipated future uses.	pnb	
151	Page 56, para 4	The text of this variance request has changed from: "Where possible, vegetation cover will be at least 70 percent of the premining cover, but in other places it will be established within practical limits." to "Vegetation will be established where it is practical". This variance request is <u>not</u> approved. It may not be possible to achieve 70 percent of the premining vegetation cover, but it is possible to establish vegetation within practical limits.	pnb	
152	Page 56, para 5	The request for a revegetation variance for the perimeter pit safety berm will not be approved. Revegetation needs to be established to at least 70 percent of premining cover, or to within practical limits. If stable, it may be best to leave the berms at an angle steeper than 2H:1V.	pnb	

R647-4-113 – Surety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
153	Omission	Ensure that calculations related to the Sunrise operations and the new haul road are included in the reclamation cost calculation.	pnb	
154	Omission	In the demolition cost estimate please give the structures the same names as those on the surface facilities map.	whw	
155	Page 57	In this location, only a safety berm for the Hidden Treasure pit is specified, inconsistent with section 110.2 (page 51, para 2), which reports berms for all pits.	pnb	
156	Page 59	As noted, revisions to the reclamation cost calculation that are consistent with the	pnb	

Page 20 of 20
David McMullin
M/001/0067
September 12, 2013

		reclamation plan and maps will need to be provided. Include Bawana low-grade ore piles if not already included.		
--	--	---	--	--